

AVESF
1,501
AVOAR
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Summary of Results for the September 2011 Field Investigation

USEPA SF



1373293

September 2011 Investigation Scope

- Decommissioned former potable water well
- Evaluated petroleum presence/product thickness at 33 previous investigation locations
- Completed 11 new test pit excavations to delineate contamination and define the limits of excavation

Former Potable Water Well Decommissioning

- Removed remaining hardware (i.e., pump, piping)
- Perforated well casing in accordance with Idaho State regulations
- Filled well with bentonite grout
- Removal of the well has eliminated a potential pathway for contamination to reach the deeper aquifer

Petroleum Presence/Product Thickness Evaluation

- Initially used oil water interface probe to sound wells
- Measurable petroleum recorded at MW-11 & EMW-06 – consistent with previous observations
- Used bailer to collect and observe groundwater
- Petroleum observed (i.e., sheen or globules) at 4 locations – consistent with previous observations

Test Pit Excavations to Delineate Contamination

Evaluation at TP-06 / GA-3 (western edge of the site)

- Completed 5 test pits adjacent to/around former investigation locations
- Visual evidence of petroleum product not observed in test pits
- Sample collected/analyzed from TP11
- Detected contaminant concentrations less than screening levels/background concentrations
- Detected petroleum at relatively low concentrations (in the range of 150 to 225 mg/kg)

Test Pit Excavations to Delineate Contamination

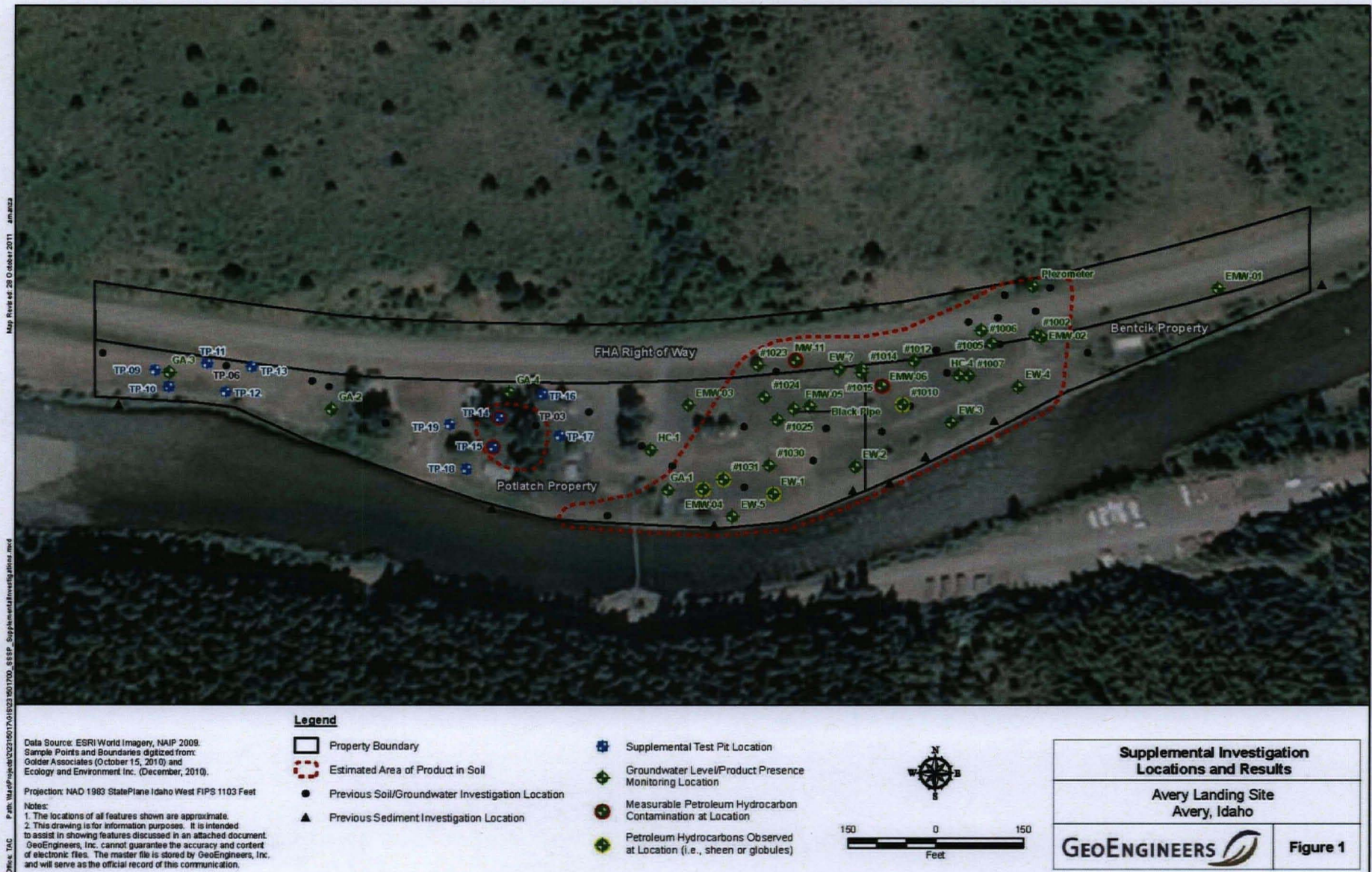
Evaluation at TP-03 (central portion of the site)

- Completed 6 test pits around former locations
- Visual evidence of petroleum product observed in test pits TP-14 & TP-15
- Petroleum not observed in test pits TP-16 Thru TP-19
- Sample collected / analyzed from TP-15, TP-17, TP-18 and TP-19
- Detected contaminant concentrations less than screening levels/background concentrations
- Detected low petroleum concentrations at TP-17 thru TP-19 – (in the range of ND to 35 mg/kg)
- Detected relatively low petroleum concentrations at TP-15 (in the range of 820 mg/kg)

Conclusions

- The September field investigation effectively delineated the extent of contamination within the Potlatch property boundary
- Estimated volume of contamination based on analysis of the Site data:
 - Potlatch property – 14,953 CY
 - Bencik property – 11,325 CY
 - FHWA property – 4,905 CY (not inclusive of the September 2011 investigation results)

Estimated Extent of Product in Soil



Approach to Cleanup Work

General Approach Considerations

- Due to physical Site constraints and the sequence required to prevent cross-contamination the site must be cleaned up in phases:
 - Phase 1 FHWA property
 - Phase 2 Bencik property
 - Phase 3 Potlatch property
- A comprehensive Site-wide Remediation Plan will be developed by EPA and Potlatch that will describe details related to the implementation of each phase and the transition between the individual phases
- The Phase 3 work will be completed by Potlatch in accordance with the EPA-approved plan and will be subject to EPA oversight

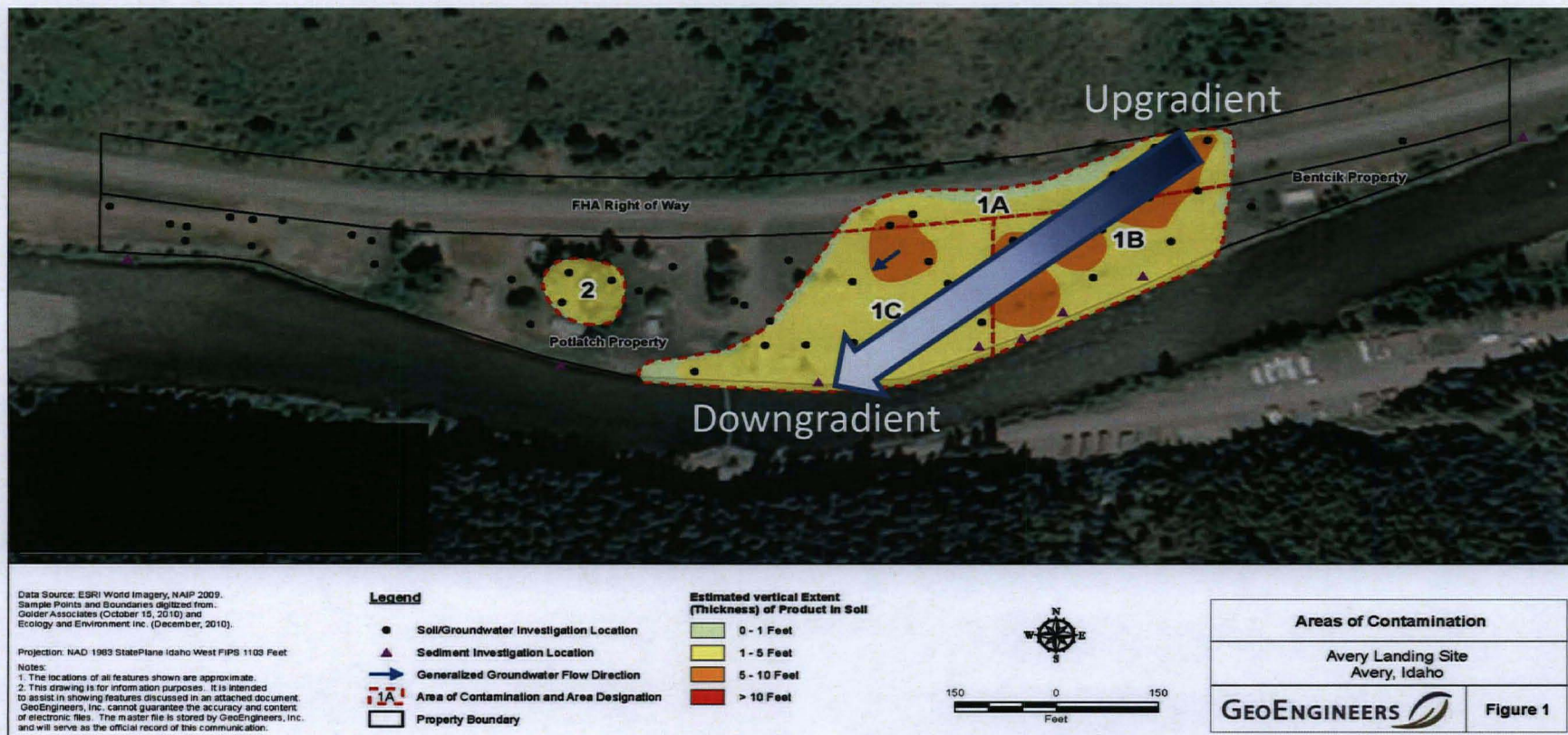
Construction Sequence

- Work from upgradient to down gradient to prevent cross contamination
- Start in higher elevation areas to allow construction to begin before water levels reach seasonal low to facilitate project schedule and minimize need for dewatering
- Utilize available Potlatch and Bentsik properties to reroute the highway and for staging during FHWA phase
- Utilize Potlatch property for staging during Bentsik phase

Contamination Gradient

Sequence work from upgradient contamination to downgradient contamination to prevent recontamination of cleaned up areas

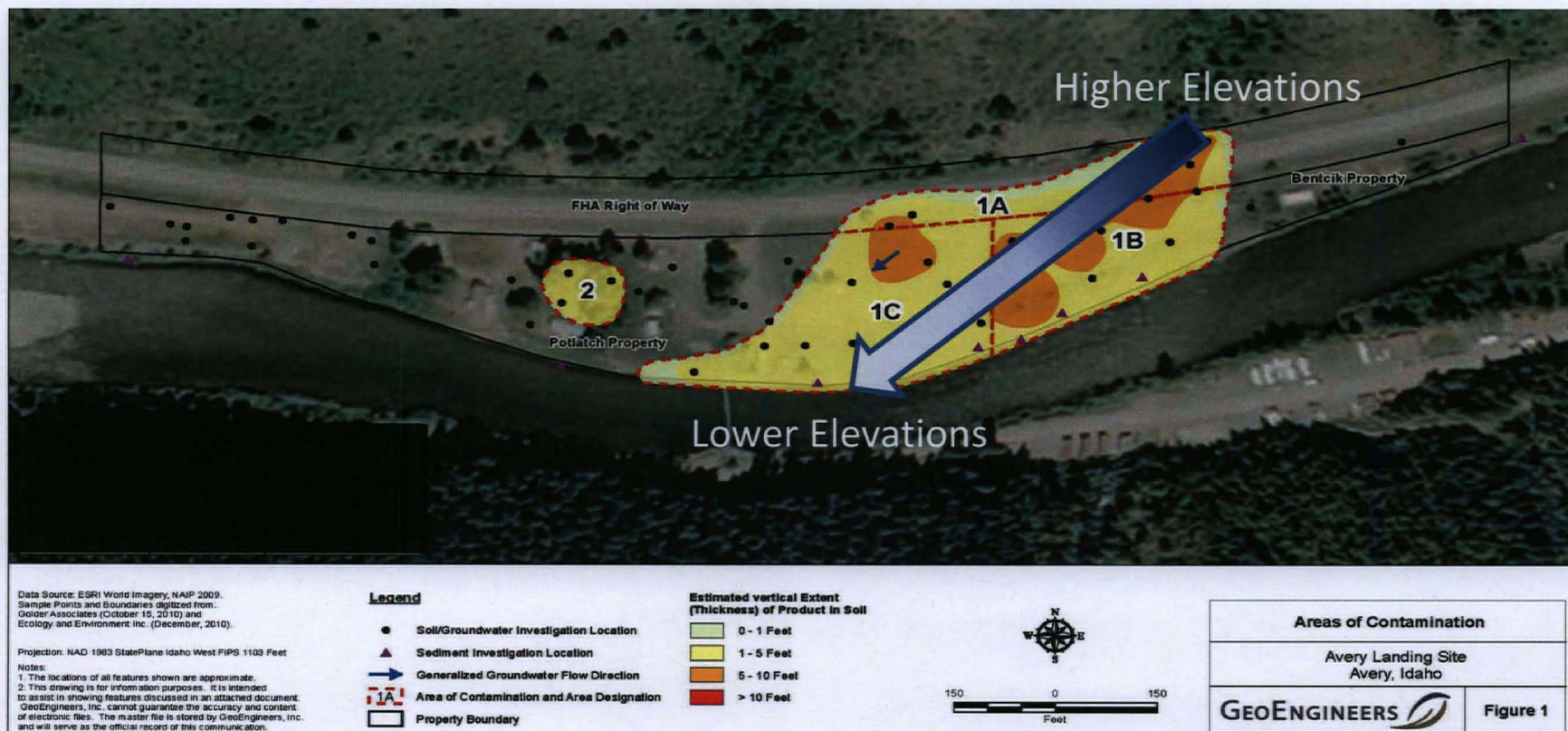
Construction area sequence: 1A, 1B, 1C and 2



Elevation

Start in higher elevation areas to allow construction to begin before water levels reach seasonal low to facilitate project schedule and minimize need for dewatering

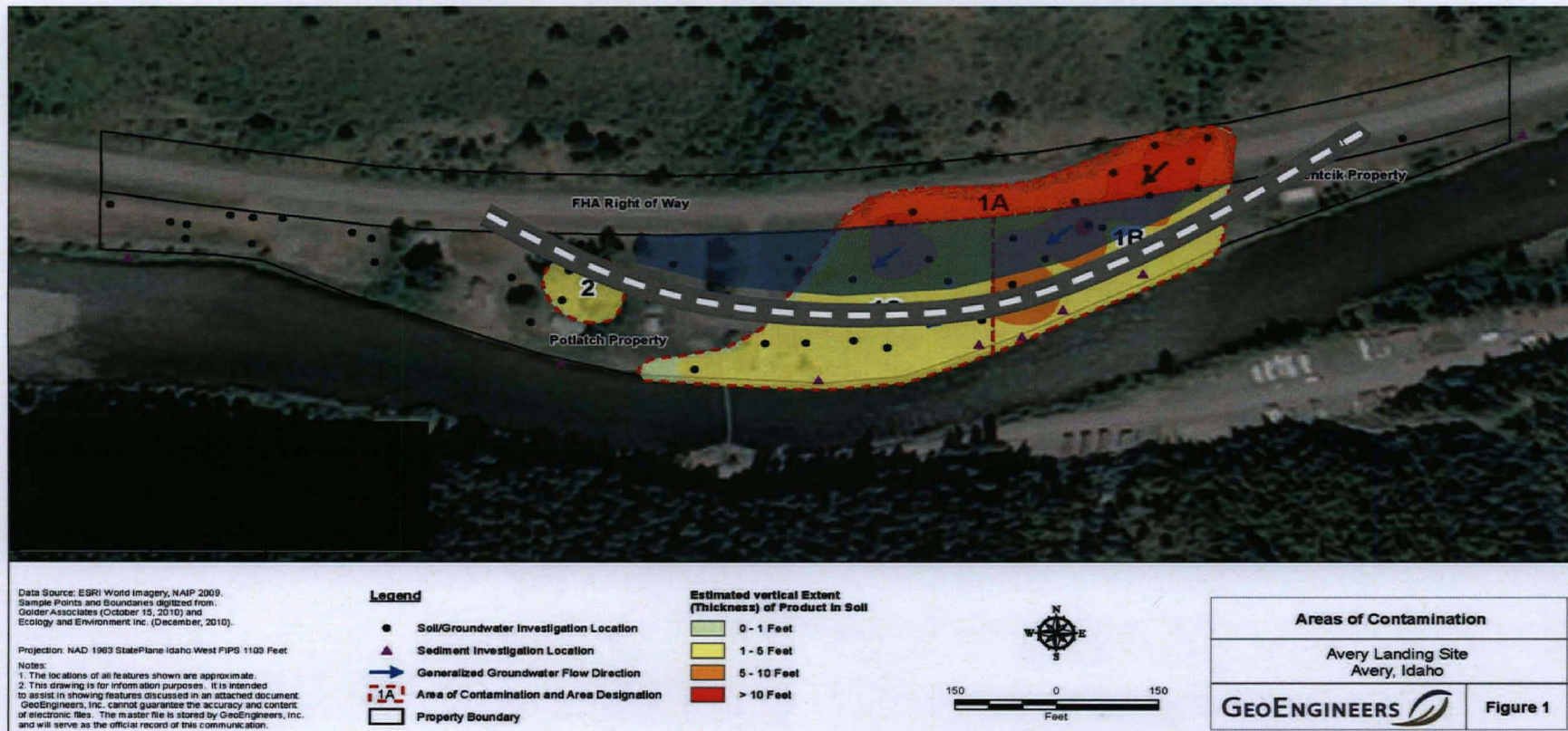
Construction area sequence: 1A, 1B, 1C and 2



Phase 1 Staging

Utilize Bencik and Potlatch properties to re-route highway and as laydown areas for FHWA area construction.

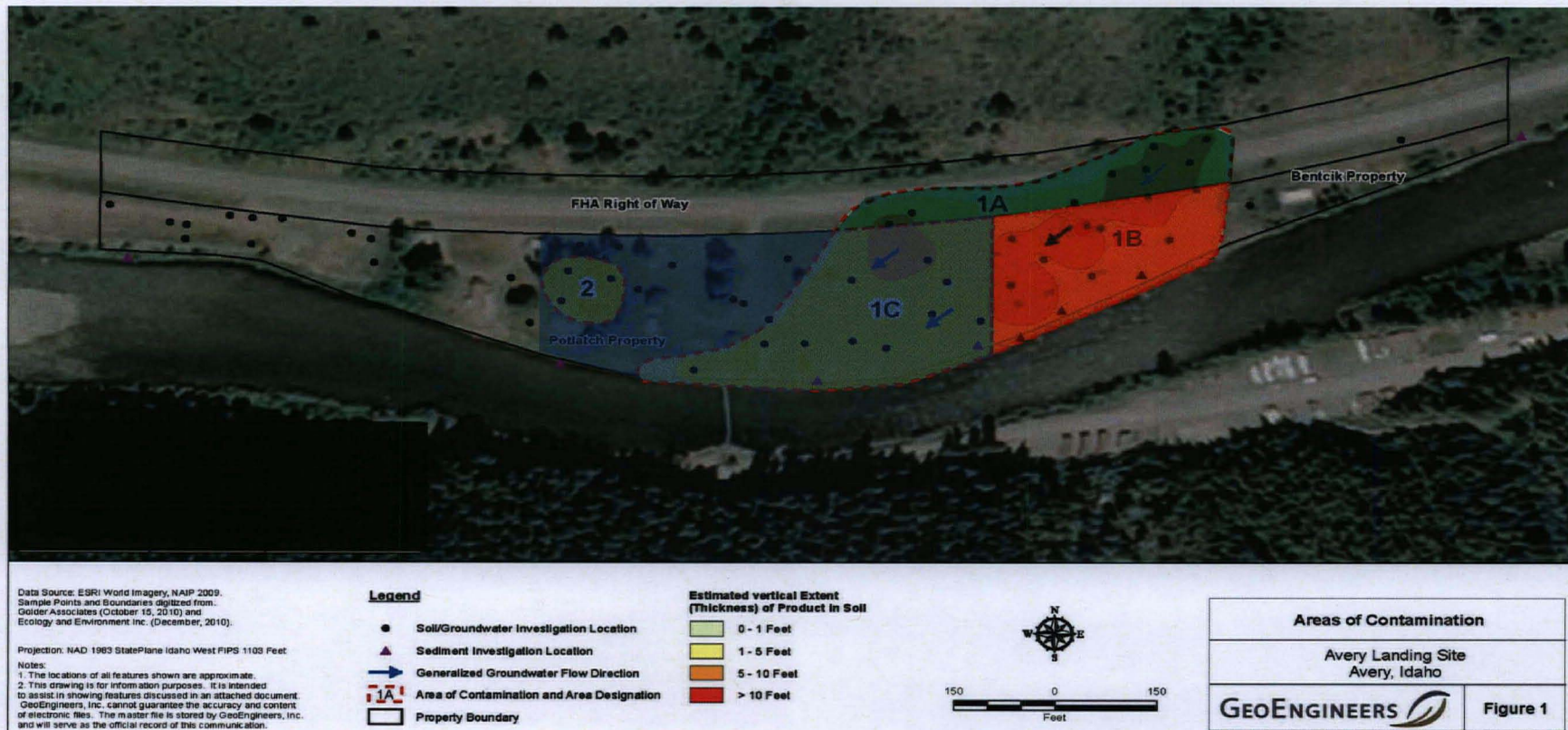
Construction area sequence: 1A, 1B, 1C and 2



Phase 2 Staging

Utilize Potlatch property as laydown area for Bentcik area construction to avoid recontamination of clean areas and minimize disruptions to the highway

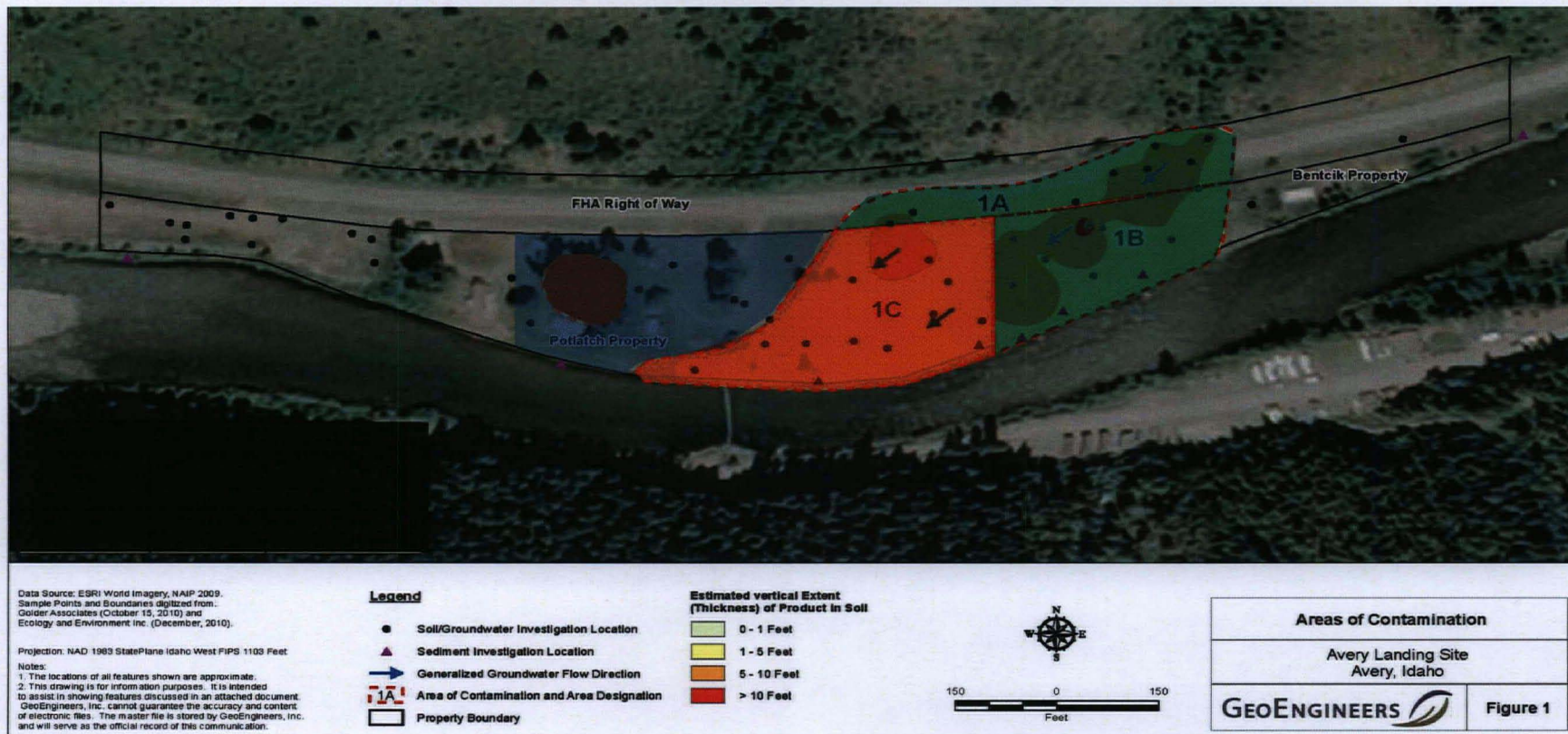
Construction area sequence: 1A (clean), 1B, 1C and 2



Phase 3 Staging

Utilize Potlatch property as laydown area for Potlatch area construction to avoid recontamination of clean areas and minimize disruptions to the highway

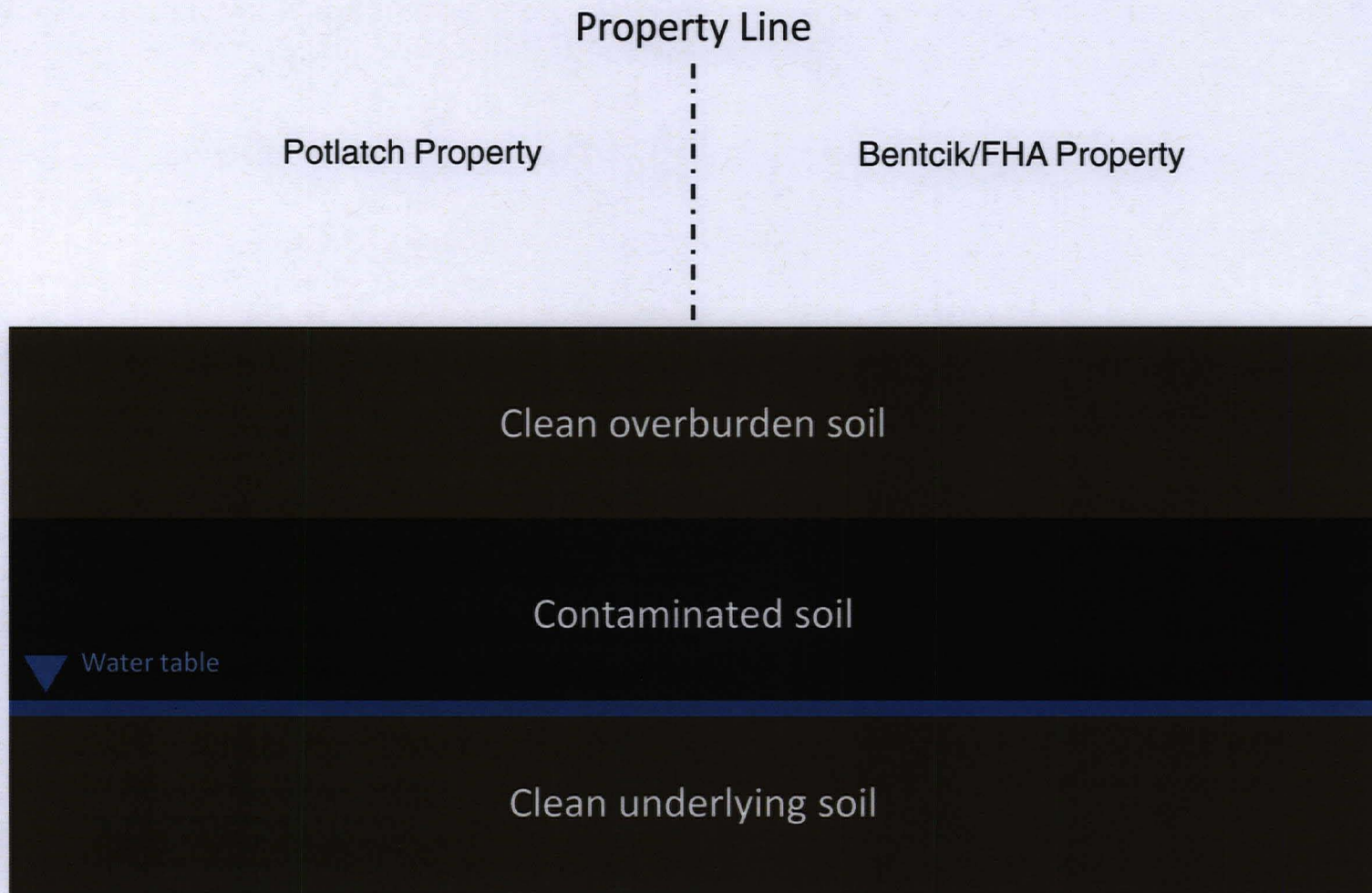
Construction area sequence: 1A (clean), 1B (clean), 1C and 2



Transition of Excavation Areas Across Property Lines

Common construction practices can be utilized to effectively transition excavation sidewalls between phases:

- Stable side slopes
- Vertical shoring

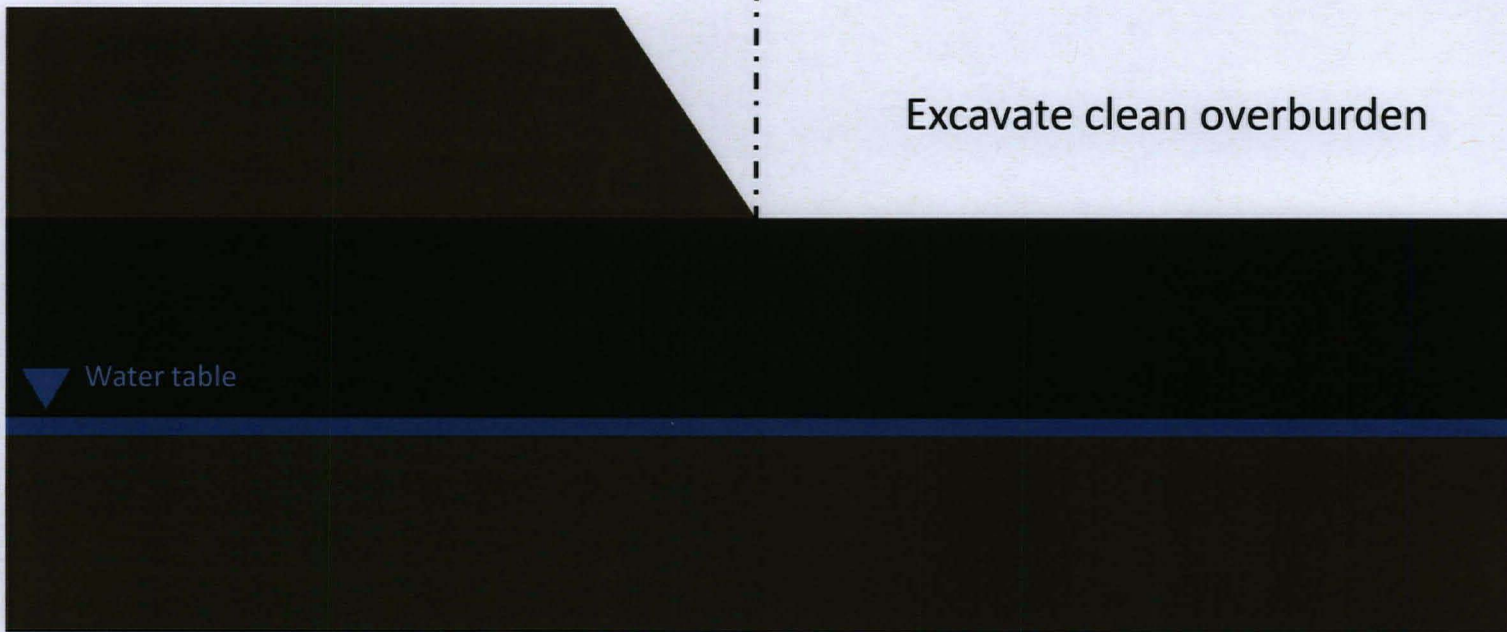


Typical side slope transition sequence

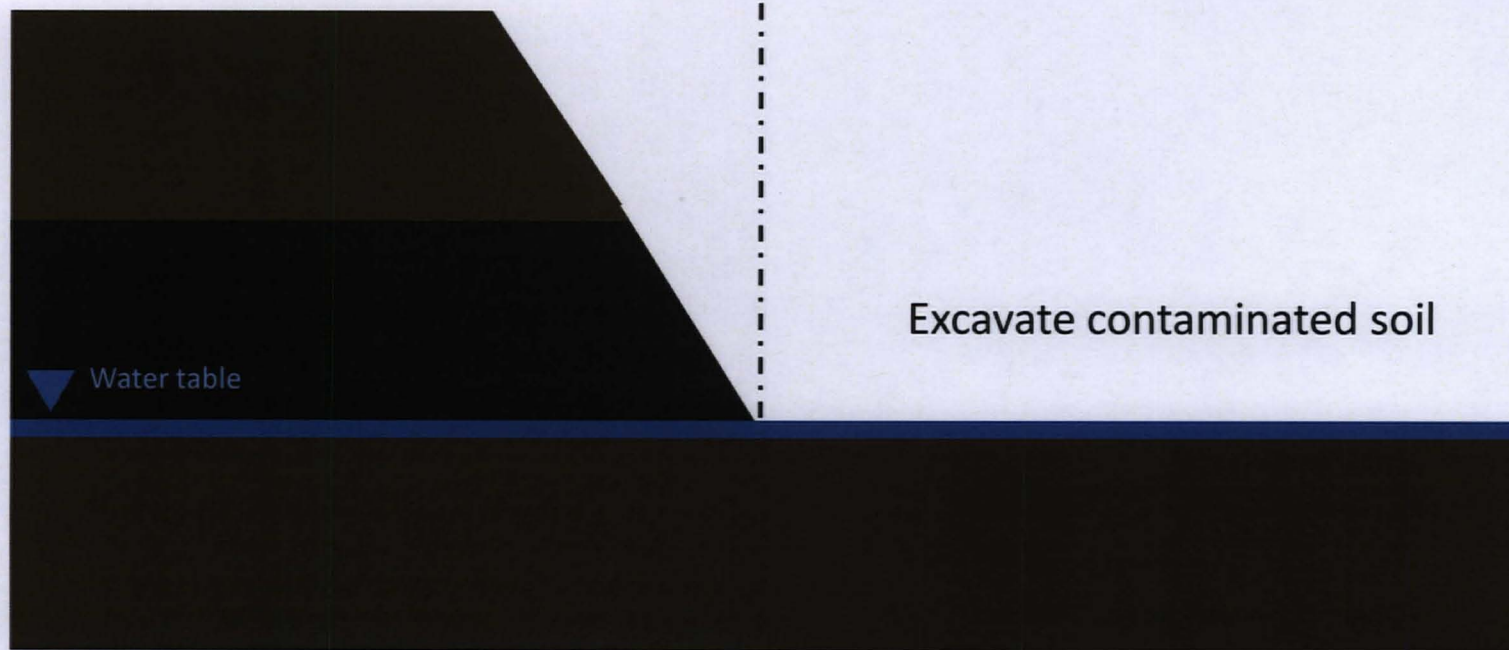
Property Line

Excavate clean overburden

▼ Water table

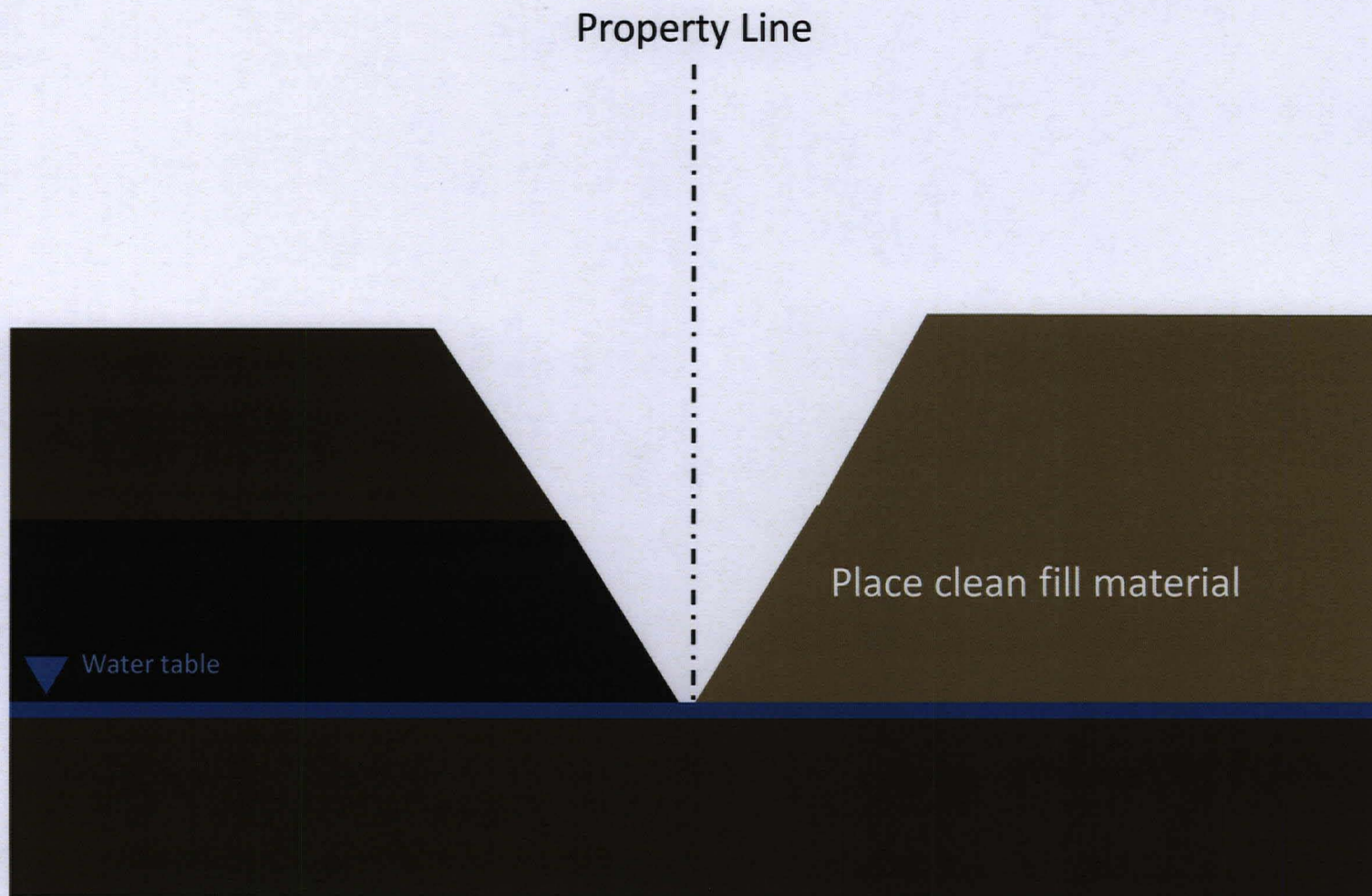


Property Line



Water table

Excavate contaminated soil

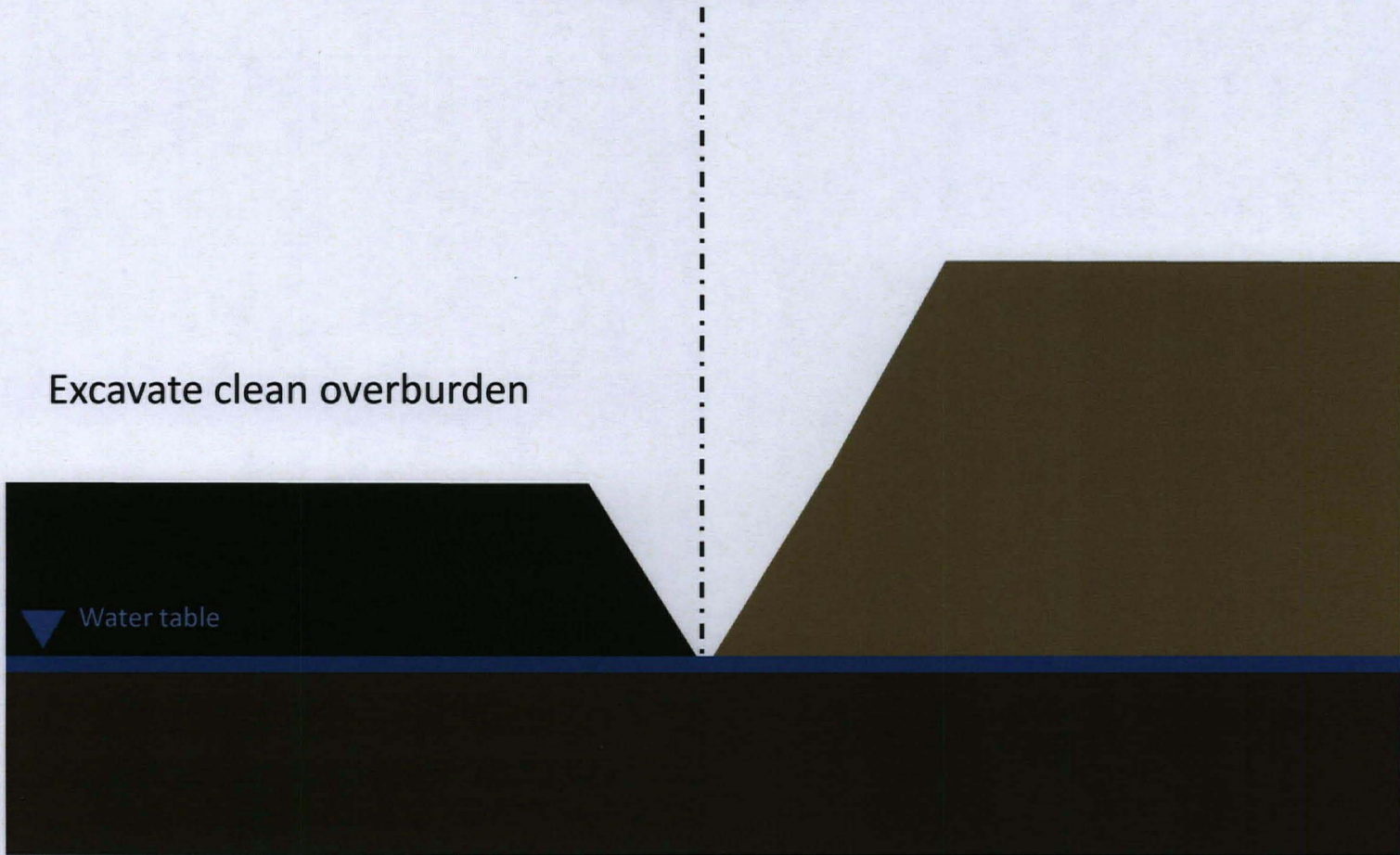


Side slope transition sequence

Property Line

Excavate clean overburden

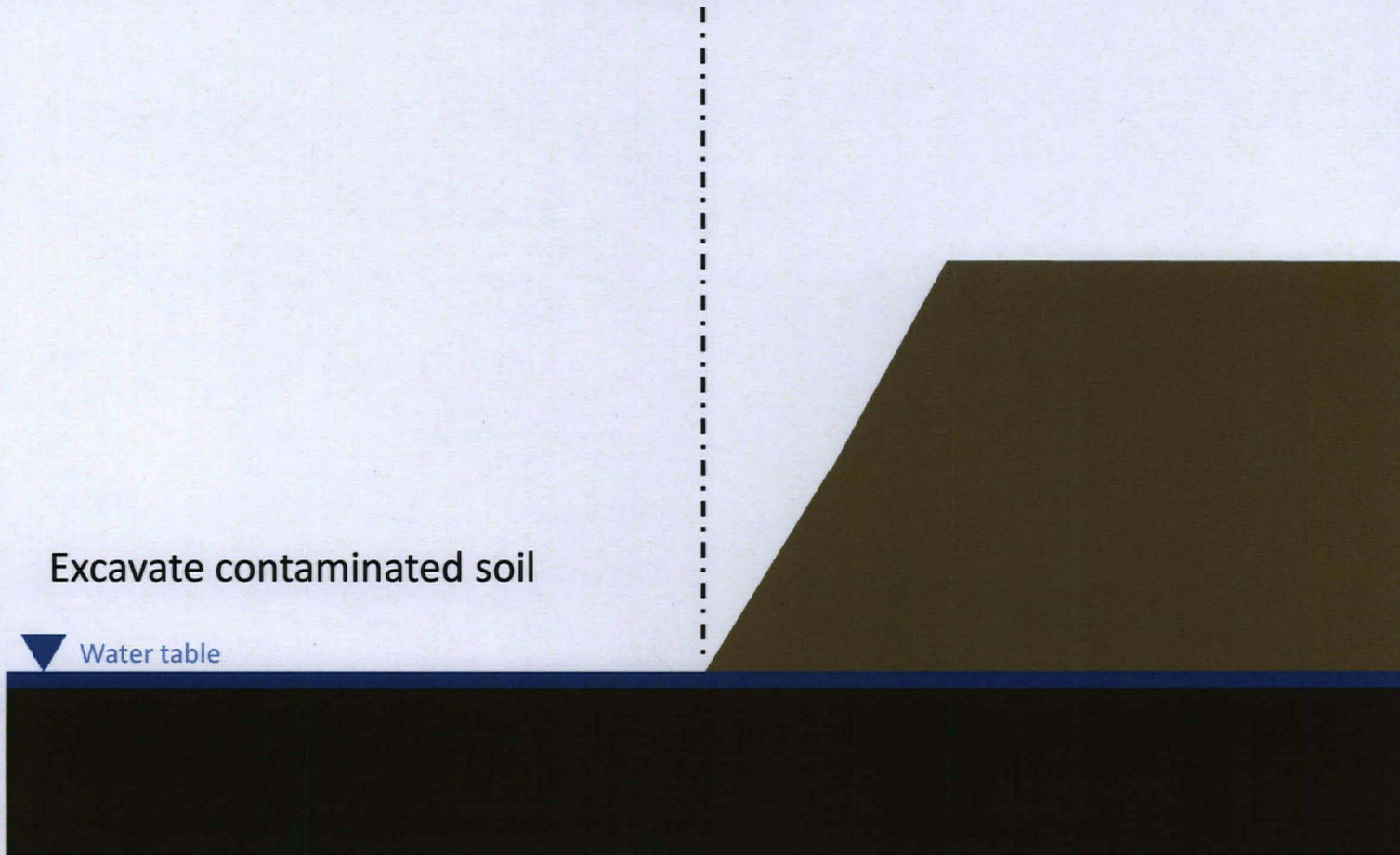
Water table



Property Line

Excavate contaminated soil

▼ Water table



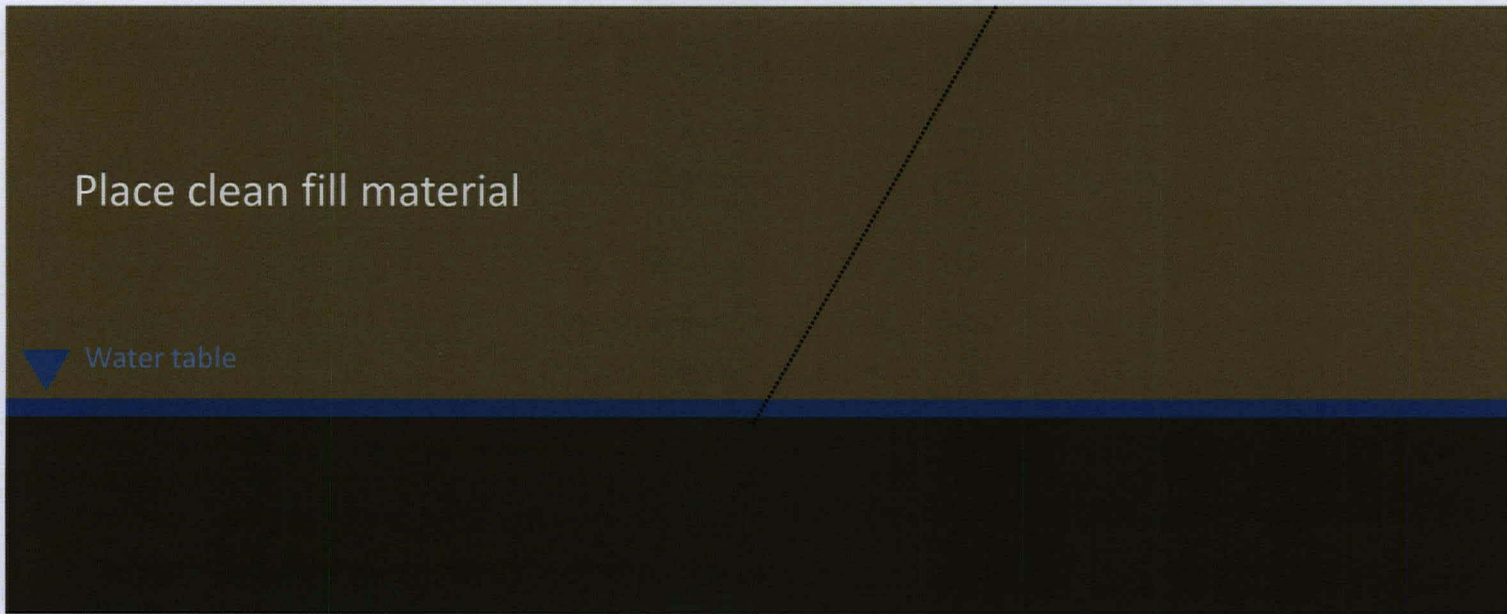
Property Line



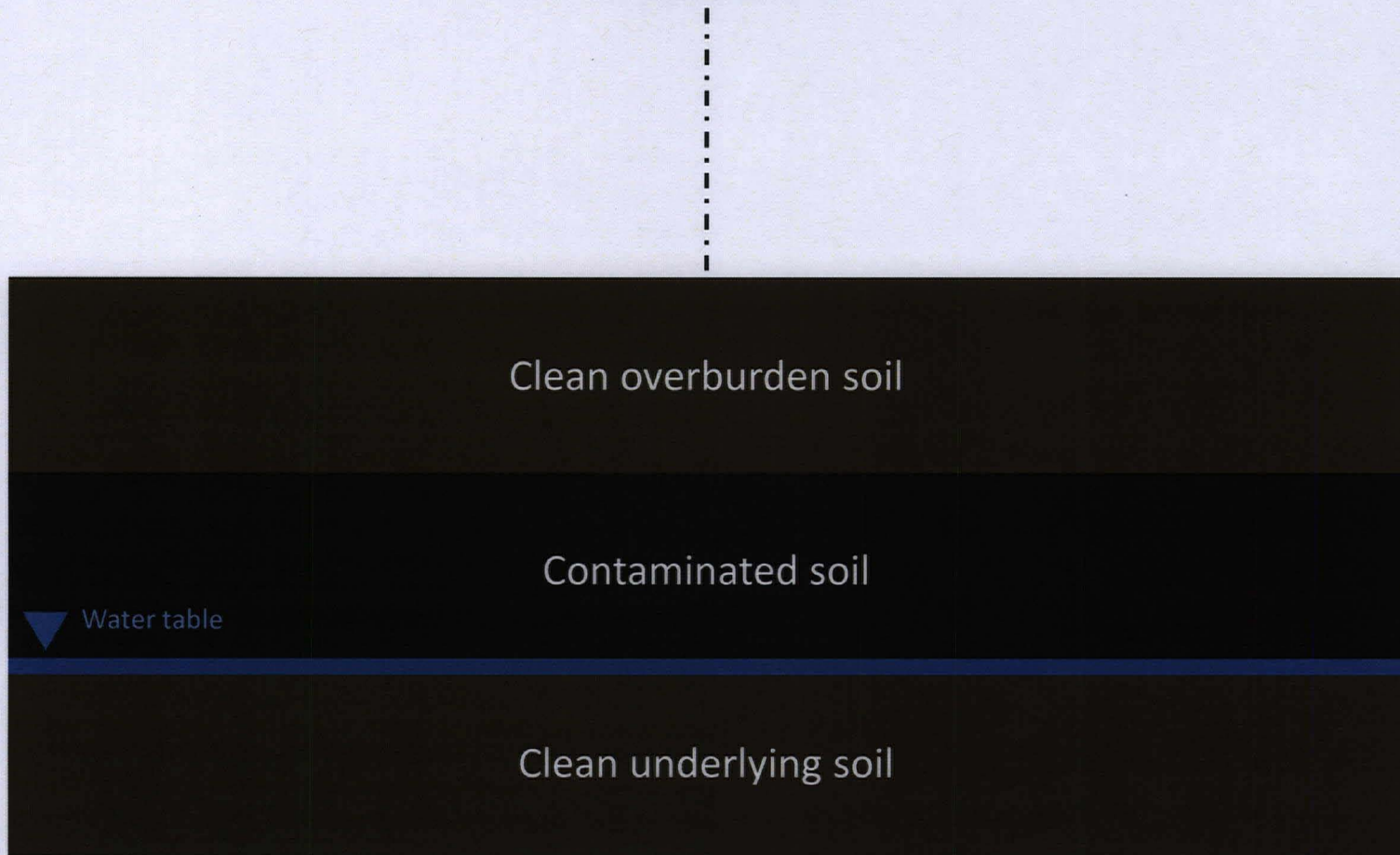
Place clean fill material



Water table

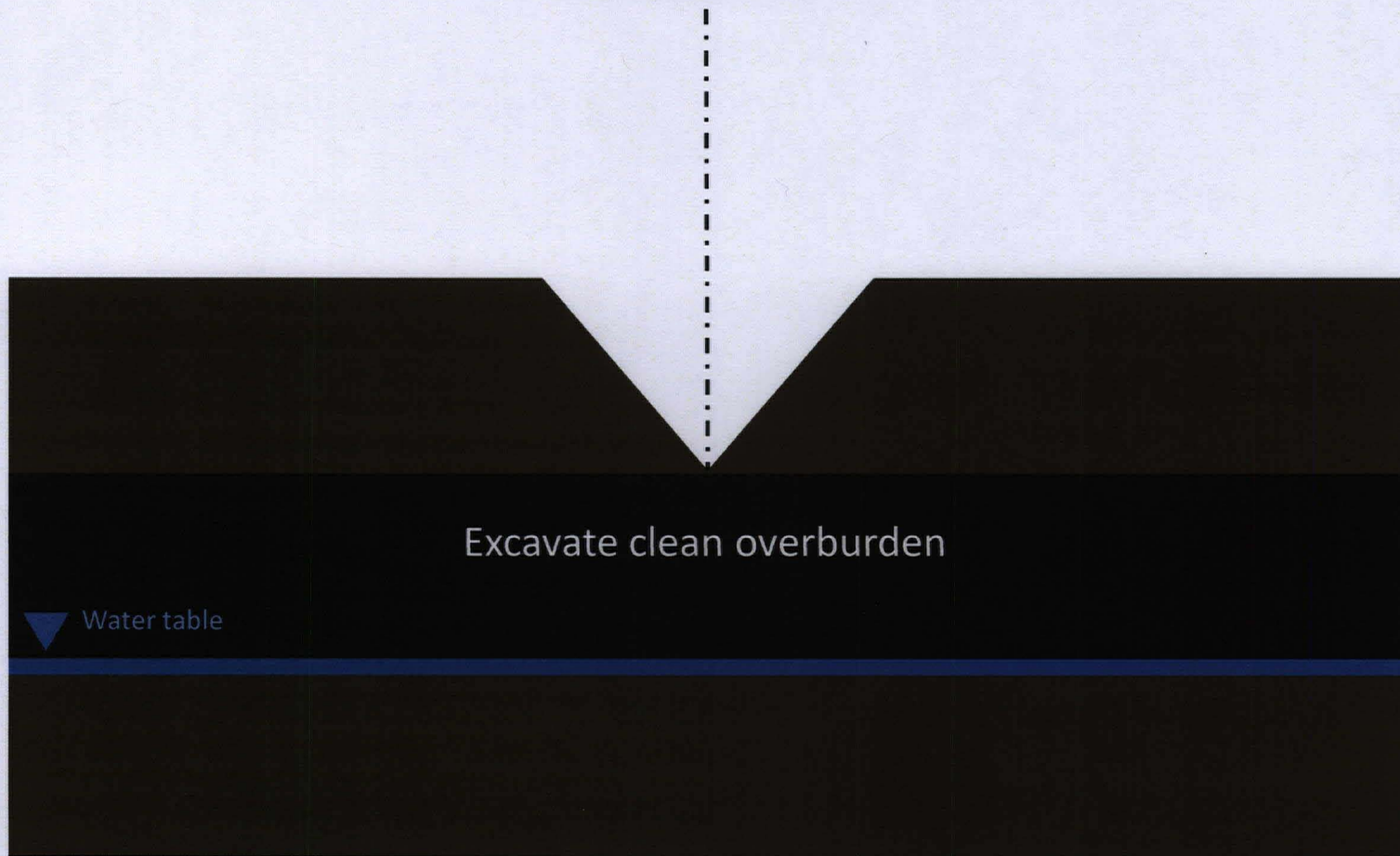


Property Line

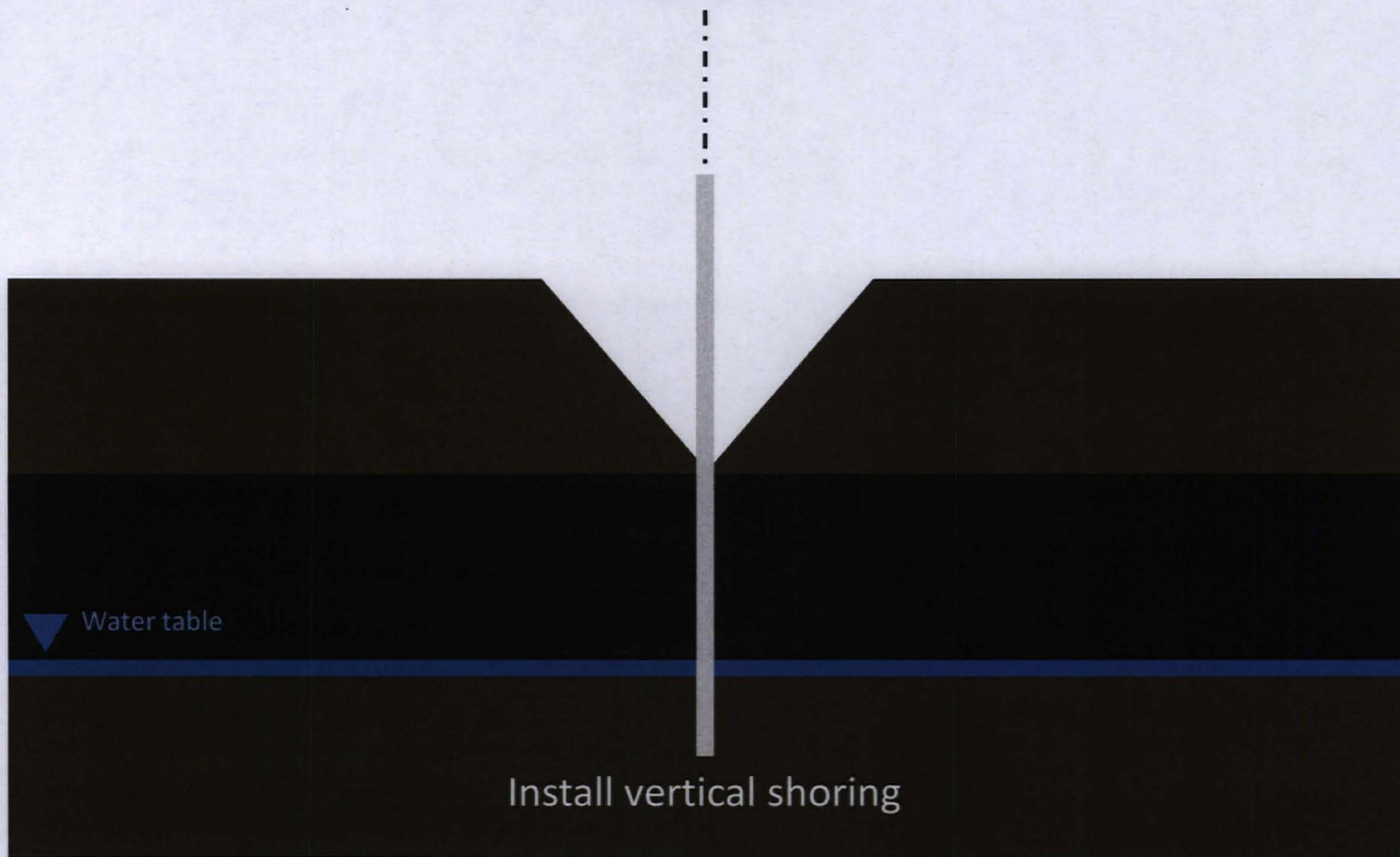


Vertical shoring transition sequence

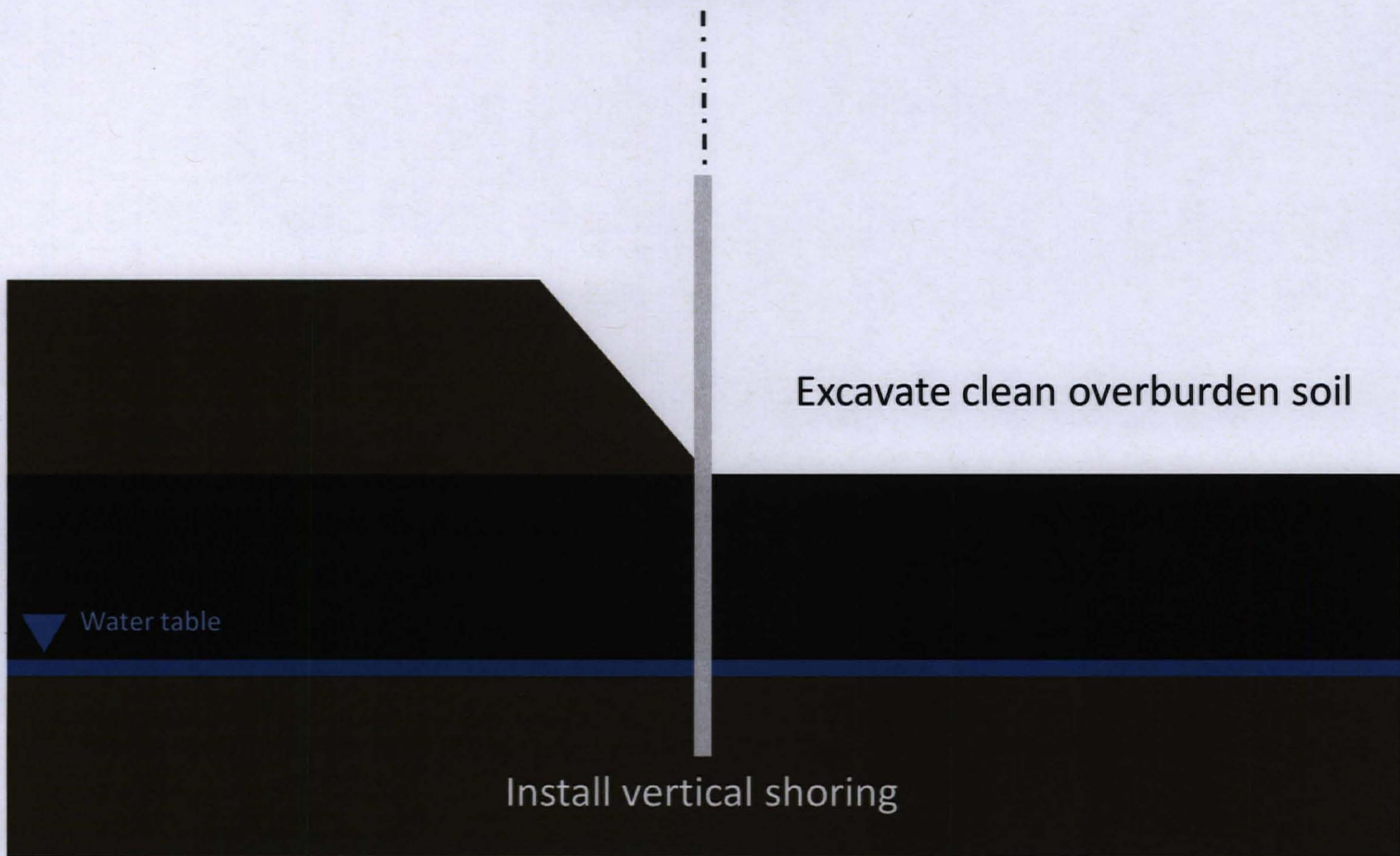
Property Line



Property Line



Property Line

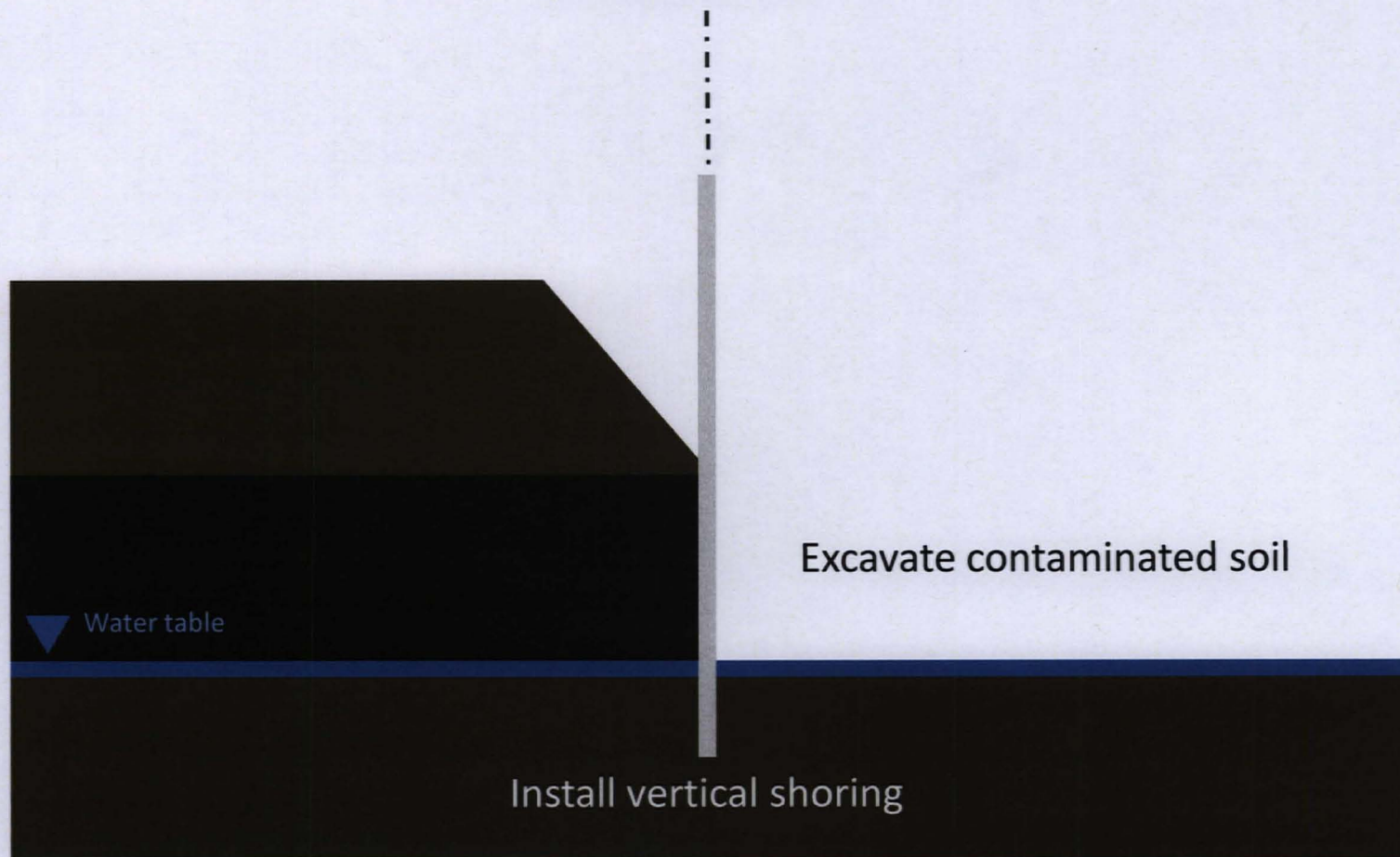


Excavate clean overburden soil

Water table

Install vertical shoring

Property Line

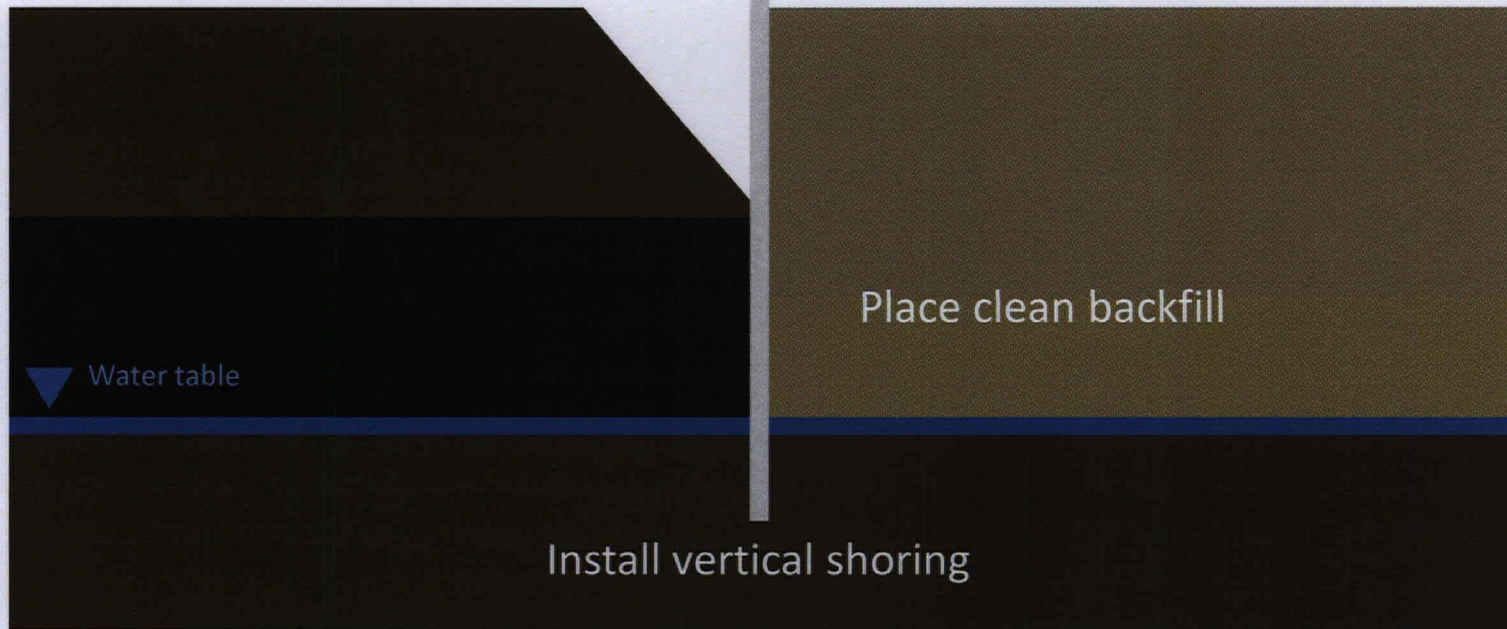


Excavate contaminated soil

Water table

Install vertical shoring

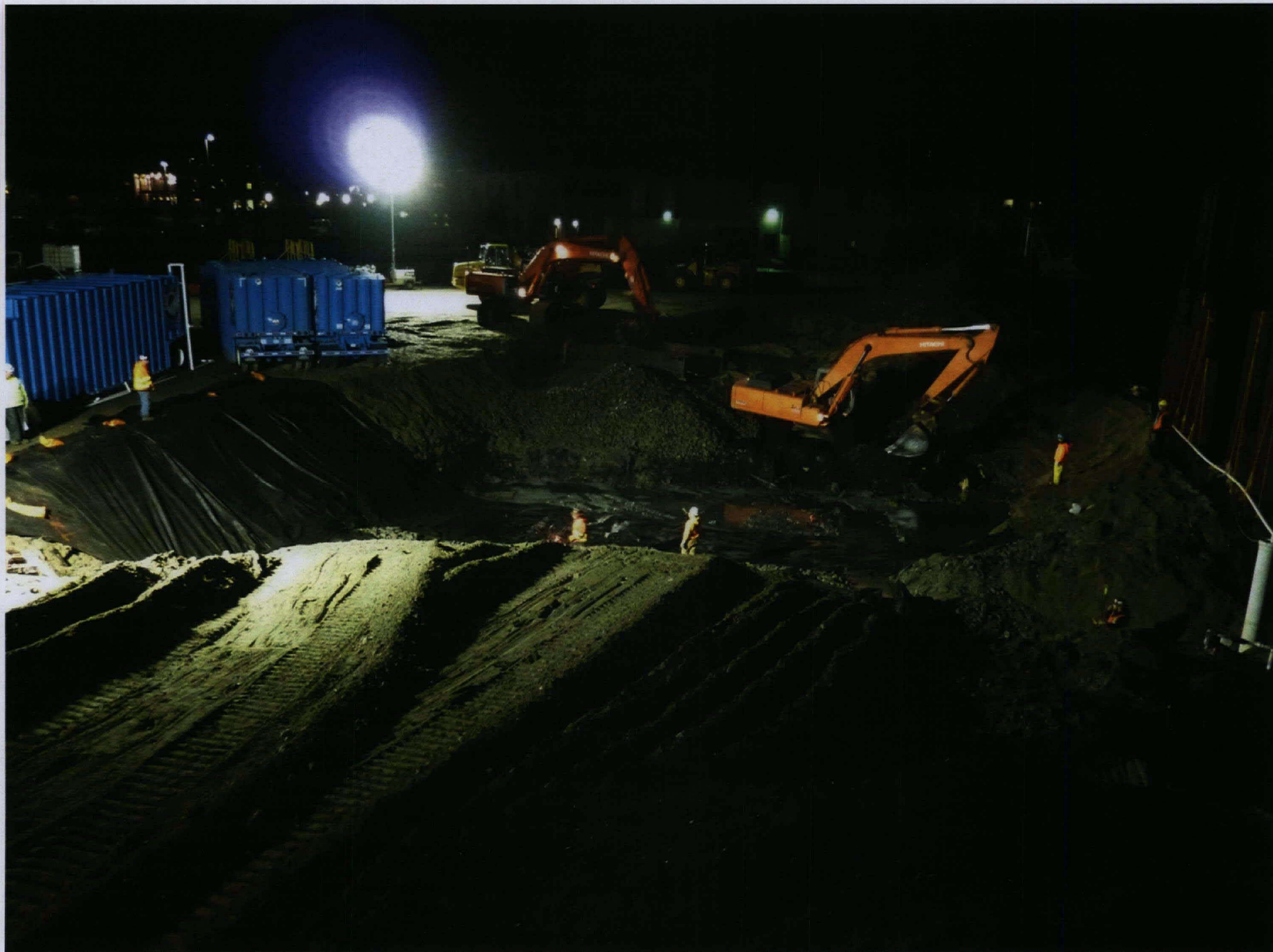
Property Line



Place clean backfill

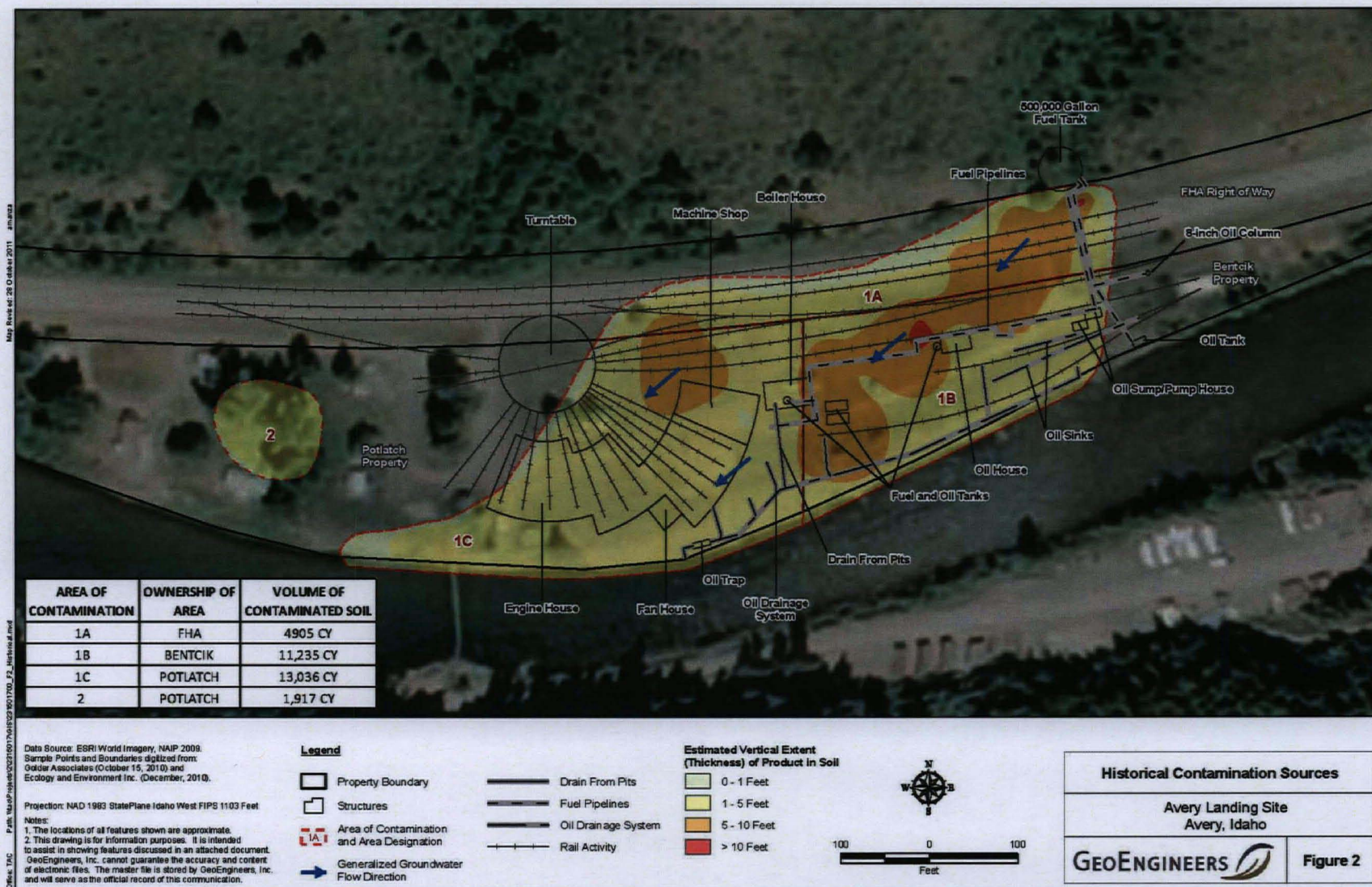
Water table

Install vertical shoring



Cleanup Costs

Extent of Contamination, Property Areas, and Potential Sources



Property Areas, Volume of Contamination and Potential Sources

Area		Sources of Contamination to Area ¹	Volume of Contaminated Soil (based on property ownership)	Source Contribution (based on source)		
				FHWA	Bentcik	Potlatch
1A	FHWA Right-of-Way	Former 500,000 Gallon Fuel Tank	4,905 Cubic Yards 15.8%	100% (4,900 CY)	0%	0%
		Former Fuel Pipelines				
		Activities Along Former Rail Lines				
1B	Bentcik Property	Former Fuel and Oil Tanks	11,235 Cubic Yards 36.1%	50% (5,618 CY)	50% (5,618 CY)	0%
		Former Fuel and Oil Pipelines				
		Activities Along Former Rail Lines				
		Historic Rail Facility Operations at the Following:				
		Oil Sump				
		Oil Drainage System				
1C	Potlatch Property	Drains from Pits	13,036 Cubic Yards 48.1%	25% (3,259 CY)	25% (3,259 CY)	50% (6,518 CY)
		Boiler House				
		Migration from Sources on the FHWA Right-of-Way				
		Activities Along Former Rail Lines				
		Historic Rail Facility Operations at the following:				
		Engine and Fan Houses				
		Machine Shop				
2	Potlatch Property	Turntable	1,917 Cubic Yards	0%	0%	100% (1,917 CY)
		Drains from Pits				
		Boiler House				
		Migration from Sources on the FHWA Right-of-Way				
		Migration from Sources on the Bentcik property				
		Unknown				
		Assumed to be Historic Activities Along Former Rail Lines				

Entire Site Cleanup

- EPA EE/CA estimate - \$8.5M
- EPA Action Memorandum estimate – \$9.8M
- Potlatch estimate using EECA unit price assumptions and Potlatch calculated volume – \$7.1M